(No Model.)

F. R. CARGILL & W. V. KENT.

METALLIC FLOOR AND SURFACE.

No. 329,012. Patented Oct. 27, 1885.

Fig 1.

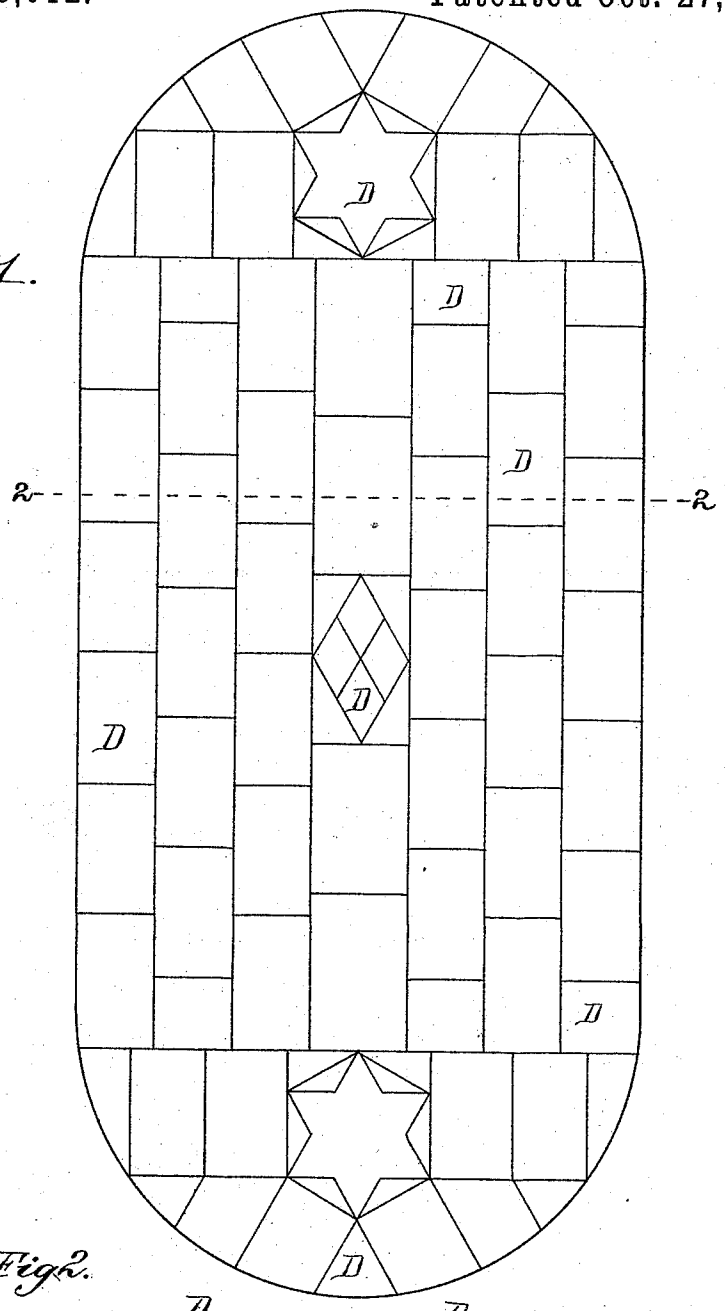
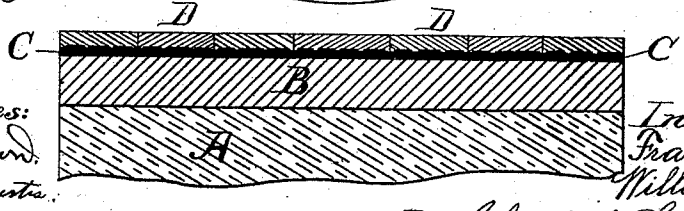


Fig 2.



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UNITED STATES PATENT OFFICE.

FRANK R. CARGILL AND WILLIAM V. KENT, OF CHICAGO, ILLINOIS.

METALLIC FLOOR AND SURFACE.

SPECIFICATION forming part of Letters Patent No. 329,012, dated October 27, 1885.

Application filed January 23, 1885. Serial No. 153,708. (No model.)

To all whom it may concern:

Be it known that we, FRANK R. CARGILL and WILLIAM V. KENT, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Floors and Surfaces, of which the following is a specification.

Our invention relates to the construction of floors and other surfaces in which the qualities of durability, evenness, smoothness, and resistance to atmospheric influences are desirable or essential, and our invention is particularly adapted to the construction of floors for roller-skating rinks, dancing-halls, bowling-alleys, and other places where a level, smooth floor or surface is desired.

We will describe our improvements as applied to the construction of the floor of a roller-skating rink; but we do not limit our invention to such use, as it is also applicable to the flooring for public buldings, lobbies of hotels, and other places where there is great or constant wear.

The floors of roller-skating rinks are usually constructed of wood, asphaltum, or concrete. Whatever the material employed, it is necessary to secure and maintain a smooth, even floor without cracks or swells, and this is very difficult. A serious objection to the use of asphaltum or concrete is the great wear upon the rollers of the skates caused by abrasion. Another objection is that a person falling on a floor of this character is apt to sustain severe injury by the abrasion, as the asphaltum or concrete always contains more or less silica. A wooden floor must be formed of narrow, hard-wood boards of the best quality and thoroughly seasoned, and great care is necessary in laying the floor in order to form close, tight joints. The initial cost of a floor made in this way is very great, and when laid it is subject to grave objections. Among these may be enumerated the tendency of the boards to shrink under the action of heat and to swell and heave when wet. Then the wood is likely to splinter and thus form obstacles dangerous to persons moving rapidly over them and likely to seriously injure a person falling on them. Such floors are also very noisy, being more objectionable than asphaltum or concrete floors on this account, although superior to the latter in other particulars. But the principal difficulty encountered in the construction of such floors with any of these materials mentioned is that of keeping the floor level, owing to atmospheric influences and heaving of the ground by frost, as, on account of the great expense attending the construction of these floors on foundations extending below frost, they are usually laid either directly on the ground or on foundations laid on the ground. The expense consequent on keeping floors of any of the kinds above described in order is considerable.

To overcome the difficulties above pointed out, and to secure a floor which shall be durable, non-resonant, smooth, and level, and not so subject to atmospheric influences as those in common use, is our object.

To these ends our invention consists in a metallic flooring, substantially as hereinafter described.

In the accompanying drawings one manner of constructing a floor embodying our invention is illustrated. Figure 1 is a plan view of a floor, showing various forms of metallic blocks or sections, and Fig. 2 is a vertical cross-section through the metallic blocks or sections and the foundation, taken on line 2 2 of Fig. 1.

The foundation may be prepared by leveling the ground A, and then placing thereon a course of asphaltum or concrete of cement and gravel or coarse sand, marked B. Upon this we prefer to spread a thin layer, C, of concrete of cement and fine sand or plaster or other suitable compound made plastic with water, and on this to lay the metallic floor. This metallic floor we prefer to form in blocks or sections D, and these may be of any desired form, as square, oblong, triangular, &c. These sections D are of such a metal or combination of metals as will give to them the quality of toughness, smoothness, and durability, and particularly the quality of being non-resonant. Zinc, lead, or other suitable metal may be used in a pure state. One good combination of metals for this purpose has lead for a base, with a percentage of tin, antimony, and copper or bismuth; another, zinc for a base, with a percentage of antimony, copper, tin, and mercury. We have also contemplated using a cast-iron block or section, and coating it with some metal or composition of metals,

such as described, which will deaden the sound, render it smooth, and prevent the iron from rusting. When a combination of metals is employed, the metals are combined while in a molten state, and then the sections or blocks D are formed preferably by casting them in molds having a smooth bottom, say, of iron, or the metal may be rolled into sheets or slabs in any well-known way. However formed, these blocks or sections should have one smooth face, and we prefer to have the other rough, for a purpose hereinafter described. The blocks should be of convenient shape and size for handling, a convenient shape being an oblong, say, six feet long by three feet wide, and in thickness a quarter of an inch. The blocks may be made with smooth, straight edges, or they may be provided with grooves adapted to receive the corresponding flanges of adjoining blocks. Ordinarily the weight of the sections D will be sufficient to keep them in place, and with their edges even and level. These metallic sections are laid with the smooth side up, and we prefer to lay them upon the plastic mass C, as the sections may in this way be readily leveled. When the lower sides of the blocks D are left rough and then pressed down into a plastic mass, as before described, the plastic material will fill up the depressions, crevices, and pores of the blocks, and the two will thereby become interlocked, thus tending to secure the blocks firmly and securely in place. After the sections D are in place the joints between adjacent blocks may be filled with a liquid metal of the same composition as the blocks or by any suitable solder. The joint may then be worked with a smoothing-iron before the metal cools, or may be planed down after it cools. When the joints between the blocks are thus filled, the floor is practically all in one piece, and hence it will not be affected by the action of frost, as it is apparent that no ordinary upheaval could separate the blocks, and with a proper combination of metals of course cracking is out of the question.

A floor constructed of metallic blocks or sections as above described will be practically unaffected by wear. On account of its smooth surface it will not wear out shoes or the rollers of skates as rapidly as asphaltum or even wood. A person falling on such a floor would not be likely to suffer abrasions, as would be the case with an asphaltum or concrete floor, nor so likely to be wounded by splinters, as often occurs where wooden floors are used. The burning of a building having such a floor would not destroy the metal of the blocks; and in such an event, or in case it is no longer desired to use the floor, the metal will have a market value according to the character of the metals used in its composition.

As before stated, the floor may be constructed of metal or metals which will render it practically non-resonant; and it may be easily burnished, so as to give a brilliant appearance whenever desired. Such a floor is capable of being beautified and ornamented by using sections of different-colored metals—such as bronze, iron, &c.—so as to give variety.

As before stated, we do not confine our invention to any particular metal or combination of metals, so long as such is employed as will secure an even, smooth surface of requisite hardness and tenacity, and such as will render it non-resonant; and of course the metal blocks here described might be employed for counters, billiard-table beds, and similar uses.

We claim—

1. A flooring or surface composed of non-resonant metal used as a base and having mixed therewith a metal to impart requisite hardness to the product.

2. A flooring or surface composed of a non-resonant metal used as a base, and mixed therewith a metal to impart requisite hardness and a metal to impart requisite tenacity to the product.

3. A flooring or surface consisting of blocks or sections composed of different metals mixed together, as and for the purpose set forth.

4. A floor consisting of a foundation of suitable material, such as asphaltum or concrete of sand and cement, a course or layer of cement, concrete, or plaster, and metallic blocks or sections laid upon the latter while plastic, substantially as and for the purpose set forth.

FRANK R. CARGILL.
WILLIAM V. KENT.

In presence of—
MASON BROSS,
C. C. LINTHICUM.